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ABSTRACT

Included in this module are five activities dealing with planning the urban environment. Activities included are: (1) analysis of new town development in the United States; (2) analysis of new town development in foreign countries; (3) discussion of technological advances expected in the next 25 years and their impact on the urban environment of the future; (4) design of a model future urban environment; and (5) evaluation of the student-designed model urban environment. Also included are an overview, teacher background information, an activity preview, a pretest, and a module evaluation form. (RE)

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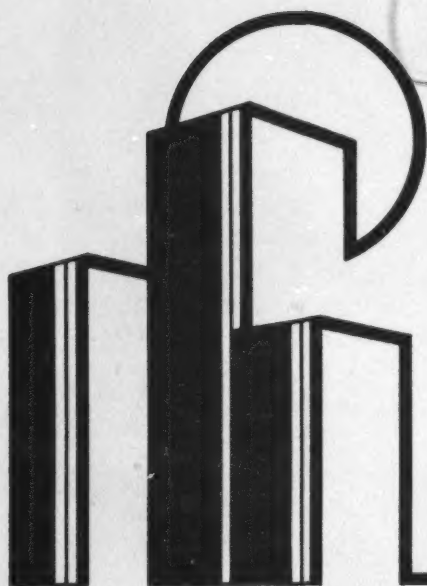
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Curriculum Module VIII

Urban Environmental Education Project

Planning Your Urban Environment

developed by Ellen Bell

SE 030 519

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URBAN ENVIRONMENTAL EDUCATION PROJECT

Curriculum Module VIII

Planning Your Urban Environment

developed by

Ellen Bell

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Planning Your Urban Environment

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Planning Your Urban Environment

OVERVIEW

This module explores the challenges of planning the urban environment. The word "planning" implies a sense of future; it is, after all, too late now to plan for the present. Planning offers an opportunity to organize development, to integrate the various parts of an urban environment, and to apply intelligence to resolving the problems faced by urban dwellers.

Every few months, metropolitan America will be building all the houses, shopping centers, schools, industries, sewers, and other things needed to create entire cities. The challenge is to organize this urban development so as to build new communities that are physically coherent, economically sound, and socially stable, instead of permitting it to be scattered in bits and pieces . . .
(Canty, 1969, p. 135)

The future of humankind portends even greater urbanization than we have today. In order to survive, our cities will need to conserve energy, water, space, time, and other resources, many of which are scarce or nonrenewable. Beyond survival, what quality of life does the future hold?

The activities in this module will enable students to investigate what urban planning has accomplished in the new towns and cities of the past quarter century, to determine what technology might be available for developing the urban environments of the next quarter century, and finally, to experiment with the design of an attractive resource-conserving model city, "EnviroCity."

Planning Your Urban Environment

TEACHER BACKGROUND INFORMATION

Urban planning is nothing new. Chinese capital cities were planned as long ago as 1000 B.C. Alexandria, Egypt was planned in 331 B.C. Urban planning in Europe is of more recent origin, but by the mid-seventeenth century planned cities were appearing in France. In the Western Hemisphere, the Spanish had a uniform written policy guiding the establishment of towns in the new world as early as 1573. In the United States, Philadelphia's plan of 1683 and Savannah, Georgia's plan of 1733 were the most noteworthy, but not the only, examples of urban planning.

New towns today are "planned communities consciously created in response to clearly stated objectives" (Galantay, 1975, p. 1). The true new town is not just a better-planned residential neighborhood. It is a complete community with industrial, commercial, cultural, and recreational facilities as well as homes. Some have said that a new town should have everything the city has -- except its faults. Others say that's impossible. You can't have bustle without noise, concentration without confusion, people without traffic, excitement without danger (Whyte, 1968, p. 231). And yet trying to achieve the new town ideal can contribute to the development of an improved urban environment.

Why do we need an improved urban environment? One expert notes that the large metropolitan areas have physical deficiencies that make them poor places to live (Scientific American, 1965, p. 193). Perceptual stress like noise and air pollution, the lack of visible identity in urban areas, the lack of relationship between parts of our cities, and the absence of openness --

all testify to the need to reorganize the urban environment.

How should the urban environment be organized? There are no easy answers. A city is not a static entity; it is continuously changing. Each city has a unique nature that is derived from its people with their changing needs, lifestyles, and dreams. A city is not just housing, industry, stores, offices, schools, hospitals, streets, parks, etc. All these elements "must be planned as part of a carefully integrated whole to provide the good life for its residents" (Bor, 1972, p. 58).

Some simple ways to improve the urban environment involve a more effective use of land. Much more can be done with space above and below the streets. Most planners stress the importance of open space in the urban environment — be creative with urban open spaces. All open spaces don't have to be parks. There are mazes, heaths, canyons, rooftops, caves, rock climbs, underground gardens, and dense bush, to mention a few alternatives to the traditional park.

Yet, our urban environments can't be saved by merely using our land more efficiently. Cities are a drain on resources. The average city dweller uses 1,250 pounds of water, 4 pounds of food, and 19 pounds of fossil fuel EVERY DAY. These are converted into 1,000 pounds of sewage, 4 pounds of refuse, and 1.9 pounds of air pollutants — EVERY DAY FOR EVERY CITY RESIDENT!

The new towns that are the focus of a large part of this module have done little or nothing to help in conserving resources. They are an attempt to create an urban environment that provides the "good life." But, what is the "good life"? What are the costs?

The activities in this module will help students raise and answer questions about the urban environment of the future.

What will our future hold?

We could now begin to convert the real, existing metropolis into an environment in which men would take pride and pleasure. It could be made into something artificial in the old-fashioned sense of the word: a work of art, fitted to human purpose" (Scientific American, 1965, p. 200-201).

About 100 years in the future we shall have a few very large cities in which people can live at an adequate level. They will not be pleasant cities by today's standards. Succeeding generations will have to do something about making cities pleasant . . . These generations will have to decide what is a desirable city, bearing in mind the great variety of humanity and the very different needs of individuals" (Meier, 1974).

Annotated Bibliography

Bor, Walter. The Making of Cities. New York: Barnes and Noble, 1972.
This book emphasizes the importance of people in the growth and development of cities.

Campbell, Carlos C. New Towns: Another Way to Live. Reston Virginia: Reston Publishing Company, 1976.
An enthusiastic survey of new towns in the United States with an emphasis on the people who live in them.

Canty, Donald (ed). The New City. New York: Praeger, 1969.
This book is the report of the National Committee on Urban Growth Policy. It is a profusely illustrated, thought-provoking discussion of our cities and where they are heading.

Eldredge, H. Wentworth (ed). Taming Megalopolis. (two volumes) New York: Praeger, 1967.
A comprehensive survey of what should be done to control an increasingly urbanized world.

Galantay, Ervin Y. New Towns: Antiquity to the Present. New York: George Braziller, 1975.
A well-balanced assessment of new towns and city planning from earliest times to the present, this well-illustrated, concise volume provides much valuable information.

Hellman, Hal. The City in the World of the Future. New York: M. Evans and Company, 1970.
An interesting discussion of city planning today and possibly tomorrow, this book is worth-while reading for students in grades 5-8.

Hiller, Carl E. Babylon to Brasilia: The Challenge of City Planning. Boston: Little, Brown, 1972.
This book contains a good discussion of new towns.

Meier, Richard. Planning for an Urban World: The Design of Resource-Conserving Cities. Cambridge, Massachusetts: MIT Press, 1974.
This book presents a thought-provoking and worthwhile discussion of the form of tomorrow's cities. Meier's main concern is cities in regions of the world with rapidly expanding populations.

Miller, Brown, Pinney, Neil J., and Saslow, William S. Innovation in New Communities. Cambridge, Massachusetts: MIT Press, 1972.
This book presents possibilities for the urban environment of the next thirty years. A realistic assessment of various technological innovations is an important part of the book.

Moholy-Nagy, Sibyl. Matrix of Man: An Illustrated History of Urban Environment. New York: Praeger, 1968.

Ms. Moholy-Nagy has strong opinions that are very different from most others who write on urban design. An intelligently written, beautifully illustrated book that is well worth reading.

Packard, Vance. "Everyday Life in 2001." Pittsburgh, January 1979, 23-28, 62-65.

A thoughtful, provocative view of life in 2001 that focuses on energy, transportation, housing, and technology. This article raises important quality of life questions, which are relevant for middle and junior high school students.

Pepper, Ron, and Calland, Albert. Man and Towns. London, England: Jackdaw Publications, 1970.

This Jackdaw contains materials that explain the development of towns, the problems of urban life, and possible solutions for the future. The materials are suitable for better students in grades 7 and up.

The Editors of Scientific American. Cities. New York: Knopf, 1965.

This book is a hardcover reprint of an issue of Scientific American which was devoted to cities. Articles focus on topics such as the planned city of Ciudad Guyana, the new towns of Scandinavia, and the metabolism of cities.

Whyte, William H. The Last Landscape. Garden City, New York: Doubleday, 1968.

A critical discussion of the new town movement.

ACTIVITY PREVIEW

This module contains five activities. Each activity requires a minimum of 45 minutes of class time. Supplementary activities are included; their use would increase the class time needed.

Activity 1. New Towns: Here

New towns are defined, and examples of new town development in the United States are described in a short reading. A reading guide helps students focus on the main ideas. Maps are used to examine the location of new towns in the United States.

Activity 2. New Towns: There

A brief reading provides information about new towns in other areas of the world, and slides provide visual evidence of selected new towns. Using a chart, students compare and contrast new towns in the United States, Europe, and South America.

Activity 3. The Future Urban Environment

Four fact sheets provide information on possible technological advances of the next 25 years. Working in groups, students evaluate the environmental impacts of these developments.

Activity 4. EnviroCity

Working in groups, students design a total urban environment for the future. Particular attention is paid to housing, energy use, transportation, and waste disposal.

Activity 5. Evaluating EnviroCity

This activity is a follow-up to Activity 4. Student groups present their versions of EnviroCity to the class. Then, students use a chart to compare the plans and assess how successfully each EnviroCity deals with urban environmental issues.

NOTE: A knowledge pretest for students, reprinted on the following pages, is provided in the Student Materials Packet.

Planning Your Urban Environment

MODULE III PRETEST

1. A new town is
 - a. a suburban residential area.
 - b. a model cities program.
 - c. a planned, complete community.
 - d. located in an isolated part of the country.
2. City planning has been practiced
 - a. only in the past 25 years.
 - b. since 5000 B.C.
 - c. only by governments.
 - d. all of the above.
3. A new town located near a large metropolitan area is called a
 - a. balanced community.
 - b. modularization.
 - c. satellite.
 - d. none of the above.
4. Columbia, Maryland is a new town. It is organized in
 - a. villages.
 - b. megastructures.
 - c. domes.
 - d. modular towers.
5. Compared to typical United States cities, Columbia, Maryland uses less land for
 - a. open spaces.
 - b. recreation.
 - c. housing
 - d. roads.
6. Recently developed new towns in the United States tend to have
 - a. many people with low incomes.
 - b. low population density.
 - c. energy-saving innovations.
 - d. none of the above.

7. In the United States, new towns are usually located in the
 - a. industrialized mid-west.
 - b. farm states of the central plains.
 - c. mountainous regions.
 - d. sunbelt states.
8. The nation with the largest number of new towns is
 - a. Great Britain.
 - b. Sweden.
 - c. Austria.
 - d. Venezuela.
9. New towns in Europe are different from those in the United States primarily because
 - a. European new towns do not have pleasant environments.
 - b. European new towns are usually government supported and financed.
 - c. people in Europe are assigned new towns to live in.
 - d. European new towns have no industry.
10. Which of the following is an example of a new development in waste disposal?
 - a. AVAC
 - b. Reston
 - c. Tapiola
 - d. WEDway

ACTIVITY 1. New Towns: Here

Objectives: In this activity, students define "new town," evaluate the quality of the environment of two new towns in the United States, and apply map skills in formulating a statement on the location of new towns.

Organizing Ideas: A new town is a planned, complete community.

1. While new towns in the United States emphasize a pleasant living environment, they have developed relatively few new responses to urban environmental problems.
2. New towns in the United States are likely to be located in areas with warm climates.

Resources:

Campbell, Carlos C. New Towns: Another Way to Live. Reston, VA: Reston Publishing, 1976.

Galantay, Ervin Y. New Towns: Antiquity to the Present. New York: George Braziller, 1975.

Hiller, Carl E. Babylon to Brasilia: The Challenge of City Planning. Boston: Little, Brown, 1972.

Moholy-Nagy, Sibyl. Matrix of Man: An Illustrated History of Urban Environment. New York: Praeger, 1968.

Student Materials:

Handouts (provided in the Student Materials Packet)

Introducing "New Towns" (SM 1.1)

New Towns: Here (SM 1.2, 1.3, 1.4)

Reviewing "New Towns: Here" (SM 1.5, 1.6)

Transparency (provided in the Student Materials Packet)

New Community Development in the United States Since 1947.

Suggested Procedures:

1. Before students read the introduction, define (or ask them to define):
planned, complete, community, and variety. Distribute the introductory
handout, SM 1.1, and ask students to comment on the quotation at the end
of the introduction.
 - a. How does where, what, and how people build affect urban problems?
(Direct students' attention to problems in their own community.)
 - b. What conditions promote a "good society"? (What is a "great civili-
zation"?)
2. Distribute the reading, "New Town Here" (SM 1.2-1.4) for students to
read as homework or in class, either silently or aloud.
 - a. Vocabulary that you may wish to review with students before (or after)
reading includes:

industrial	convenience store	innovative
residential	professional offices	utopia
recreational	open spaces	prototype
satellite	condominiums	non-connected
metropolitan	townhouses	vacuum
profitable	public transportation	low-density
	right of way	
 - b. Questions for discussion following the reading include:

Why might city plans be forgotten during times of rapid growth?

What is your opinion of Columbia's four goals?

What seem to be this community's goals?

Why do you suppose people in Columbia prefer to use their own cars
rather than public transportation?

Would you prefer to live in Columbia or EPCOT? Why?

- c. Lest you and your students feel that all urbanists approve of Columbia and Reston, you might want to discuss this dissenting view:

Reston, Virginia is a mockery of . . . 5,000 years of urbanization . . . a new generation raised in the belief that mock village clusters are 'the best' of urban life will have been duped out of the most uniquely human, inexhaustibly creative experience man has provided for himself: . . . a man-made world of forms, spaces, and structures . . . (Moholoy-Nagy, 1968, pp. 280-281).

3. "Reviewing 'New Towns: Here'" (SM 1.5-1.6) may be assigned along with the reading, or it may be used as a review after the reading is completed.

Expected responses to the review questions are:

- #1. a, b (c may or may not be true; if students select this answer, ask them to justify it)
 - #2. a, c
 - #3. because they are located near large cities
 - #4. b
 - #5. answers may vary
 - #6. d
 - #7. air pollution, noise, waste of energy, etc.
 - #8. a
 - #9. make recycling more efficient, cut down on disease, less visual pollution from litter, etc.
4. Using the transparency, "New Community Development in the United States since 1947," ask students to: identify the state with the largest number of new communities (California); identify two other states with large numbers of new communities (Florida and Arizona); and explain why these three states might have large numbers of new communities compared to the other states (rapidly growing populations; climate, leisure and recreation opportunities).

Introducing "New Towns"

This activity begins with a reading about new towns in the United States. What is a "new town"? It is a planned, complete community that is large enough to provide variety — variety in housing, jobs, recreation, and cultural activities. Activity 2 contains a reading about new towns in other parts of the world. As you read about new towns, here and there, think about what these new towns seem to say about a person's relationship to nature and the quality of urban life.

Where people build, what they build, how they build affect all of the urban problems that fill today's newspapers . . . They also affect the abiding issues that do not make headlines: man's relationship to nature, conditions that promote a good society, the form of a great civilization. (Canty, 1969, p. 76)



New Towns: Here

City planning has been practiced in the United States since colonial days. Some examples of planned cities in the United States are Philadelphia, New Orleans, Savannah, and Washington, D.C. Unfortunately, the plans for these and other cities were forgotten during the rapid growth of the 19th century.

The urban planning that has resulted in the new towns of today began in 1962 with the founding of Reston, Virginia (named for its developer, Robert E. Simon). Reston shows some of the characteristics of the new towns of today: an industrial zone; residential villages with centers that provide shopping, schools, and churches; recreational facilities; and provisions for walking as a means of transportation.

Reston is an example of a satellite new town; that is, a new town located near a large metropolitan area. Reston and Columbia, Maryland are both near Washington, D.C.

Columbia is located between Washington, D.C. and Baltimore, Maryland. It was developed by James W. Rouse. Rouse had four goals for Columbia. He wanted it to (1) provide a good environment for people, (2) be a balanced community, (3) respect the land, and (4) be profitable.

Columbia is made up of seven villages of 10,000 to 15,000 people and a downtown area with 5,000 to 10,000 people. Each village is made up of three or four neighborhoods. Each neighborhood has about 3,000 people. Each neighborhood center provides an elementary school, a park or playground, a swimming pool, a community meeting building, and a convenience store. The seven villages each have shopping areas, professional offices, and middle and high schools.

Downtown Columbia has an enclosed multi-level mall with department stores and hundreds of shops. Downtown also has a lake, office buildings, a park, a community college, a theater, restaurants, and a tennis barn. The developers of Columbia are also planning a hospital in downtown.

Is Columbia a "balanced community"? About 20% of Columbia's 15,000 acres is devoted to open spaces (woods, streams, parks, lakes, golf courses, pathways). Another 20% of the land is taken up by business and industry: 800 businesses and industries are expected to locate in Columbia by the early 1980's and provide 60,000 jobs. Right on Columbia's outskirts is a new General Electric plant providing 10,000 jobs. Columbia uses 8% of its land for roads. (Most American cities of 100,000 use about 25% of their land for roads.) Columbia provides a choice in housing: single family homes, townhouses, apartments, and condominiums.

Columbia does provide public transportation, a bus system, which runs on its own right of way. It's separated from roads and the pedestrian walkways. The bus line connects all the village centers, downtown, and the major employment centers. It is said that 40% of Columbia's people live within a two-minute walk of a bus stop. However, most of the people in Columbia still would rather use their own cars.

Does Columbia respect the land? The builders of Columbia preserved three major stream valleys and nearly 3,000 acres of forest within the new town, and lakes have been built. So far, the natural beauty of the land is being respected. But Columbia's fourth goal is to make a profit for the developers, and the search for profits could lead into the forests and valleys.

Columbia is a typical American new town. It is a low-density "city," which emphasizes recreational opportunities. The people who live in Columbia generally have high incomes. The people who developed Columbia have provided a comfortable place for living and working. But Columbia is not a truly innovative community. For example, it does not deal with environmental problems in new ways.

"If you compare Columbia to your image of utopia, it will be a big disappointment. If you compare it to the suburbs west of Baltimore, it is a pretty good place in which to live " (Campbell, 1976, p. 93).

Disney World in Florida is an example of another type of new town: the specialized community. It is more than an amusement theme park. Disney World also contains (or will contain) the jet airport of the future, an entrance complex, an industrial park, and EPCOT. EPCOT stands for Experimental Prototype Community of Tomorrow. EPCOT is to be the city of the future for the 20,000 people who will live there.

EPCOT will have a completely enclosed and climate-controlled 50-acre downtown business center. The nearby industrial park will provide jobs in computer centers and research laboratories. All parts of Disney World will be connected by monorail.

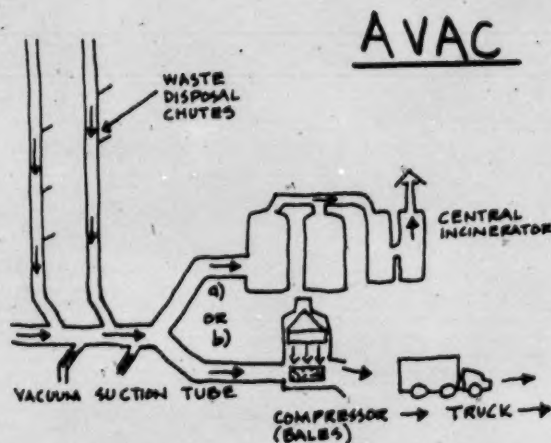
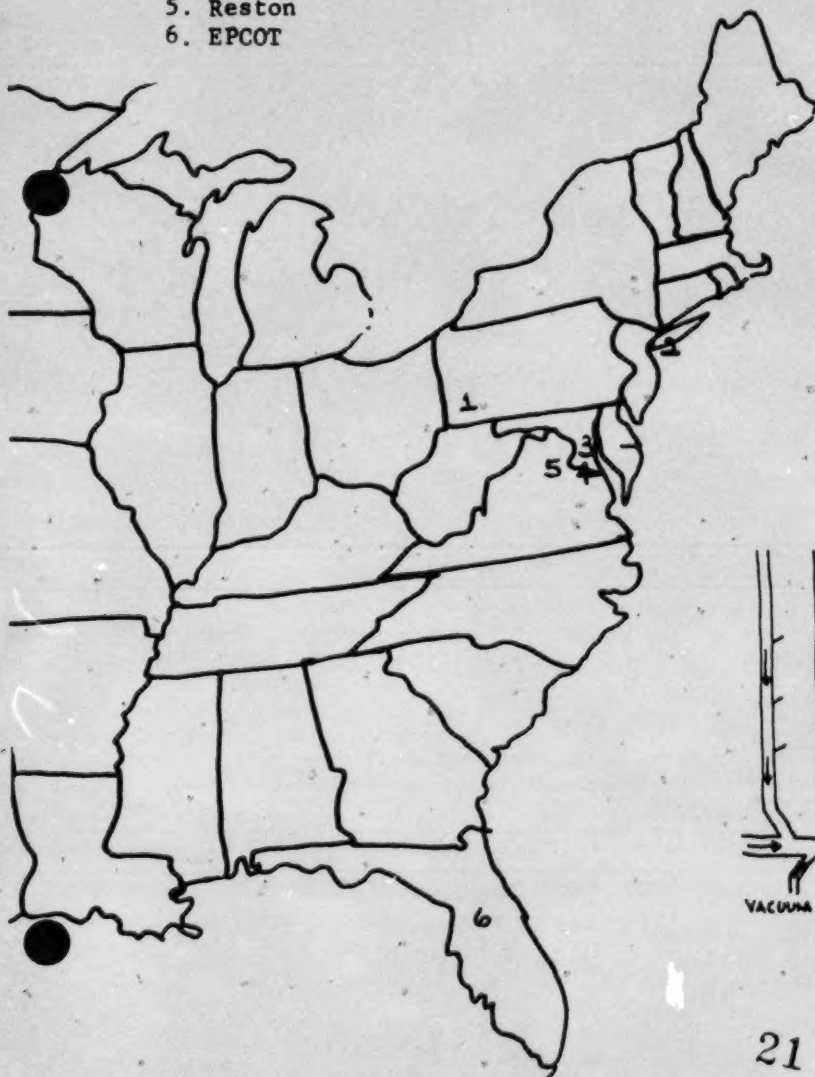
The Disney people have tried to use advanced technology in their design of EPCOT. For instance, there will be no traffic lights in EPCOT because all traffic will move along a submerged highway. Actually the residents of EPCOT should not even need cars thanks to the WED way People Mover. The WED way is a continuous, non-connected stream of cars moving along a track. The cars are driven by electric motors imbedded in the track. This is a public transportation system that should eliminate air pollution, noise, and traffic jams.

Another technological innovation to be found at Disney World is AVAC, automated vacuum collection. Trash is collected by vacuum through steel pipes to a transfer station as far as two miles away. Once the trash gets to the

transfer station it can be compacted, ground up, or otherwise disposed of. The air moves through the pipes at about 60 miles per hour. The AVAC system, which was developed in Sweden, saves time for people and eliminates the need for collection trucks and workers.

Other new towns in the United States are: Irvine, Westlake, and Valencia in California; Flower Mound and Clearlake in Texas; Park Forest south of Chicago; Jonathan in Minnesota; and Audubon, Radisson, and Roosevelt Island in New York. Since 1962, many new towns have been planned in the United States. However, most have not found new answers to the environmental problems faced by our urban areas.

1. Pittsburgh
2. New York City
3. Columbia
4. Washington, D.C.
5. Reston
6. EPCOT



Reviewing "New Towns: Here"

The following questions will help you review the reading you have just completed. Circle the best answers to each multiple choice question. Answer the other questions with a short sentence. After each question, note where in the reading you found the information.

1. A new town is
 - a. planned.
 - b. a complete community.
 - c. good for the environment.

2. Which of the following are new towns in the United States?
 - a. Reston, VA
 - b. New Stanton, PA
 - c. Columbia, MD
 - d. Pueblo, NM

3. Why are some new towns called "satellites"?

4. The developers of Columbia, Maryland had certain goals. Which was NOT one of their goals?
 - a. to make money
 - b. to provide free medical care
 - c. to respect the land
 - d. to provide a good environment for people

5. In the reading it says that the people who live in Columbia generally have high incomes. Why do you suppose this is so?

6. WED way is
 - a. a submerged highway.
 - b. a pedestrian walkway.
 - c. a method of waste disposal.
 - d. a public transportation system.

7. What environmental problems can WED way help to solve?

8. AVAC is

- a. a trash collection system.
 - b. a public transportation system
 - c. a mini-automobile.
 - d. a new town in Pennsylvania.
-

9. What environmental problems can AVAC help to solve?

ACTIVITY 2. New Towns: There

Objectives: In this activity, students compare new towns in other parts of the world with those in the United States, evaluate the contributions of new towns to the quality of urban environments, and use visual observation skills to obtain additional information about new towns.

Organizing Ideas: New towns differ in how much emphasis is given to resolving environmental problems.

1. New towns in Scandinavia are considered to be the best-planned in the world.
2. Generally, new towns are not very different from old ones in their responses to environmental problems.

Resources:

Galantay, Ervin Y. New Towns: Antiquity to the Present. New York: George Braziller, 1975.

Hiller, Carl E. Babylon to Brasilia: The Challenge of City Planning. Boston: Little, Brown, 1972.

The Editors of Scientific American. Cities. New York: Knopf, 1965.

Student Materials:

Handouts (provided in the Student Materials Packet)

New Towns: There (SM 2.1, 2.2)

Comparing New Towns Here and There (SM 2.3)

Slides (provided in the Student Materials Packet)

Scenes from Tapiola, Vallingby, Columbia, and Ciudad Guyana

World map (optional)

Suggested Procedures:

1. Assign the reading, "New Towns: There," SM 2.1-2, either for homework or as classwork.

- a. Vocabulary that you may wish to review with students before (or after) the reading includes:

urban sprawl	pedestrian mall
self-contained	row houses
congestion	hydroelectric
clustered	heavy industry

You might ask students to locate each term in the reading and try to define it from the context in which it is used.

- b. Using an atlas or other maps, students might locate each of the new towns noted in the reading.
- c. Points for discussion include the following: (The suggested responses are not the only possibilities.)
 1. Why do some people criticize the British new towns for having too many factory workers? (homogeneous populations make them "dull")
 2. How might public ownership of the land near Stockholm make building new towns relatively easy? (keeps down expenses involved in obtaining land)
 3. The subway connecting Tapiola to Helsinki hasn't been built yet. How might this affect Tapiola? (slow down Tapiola's growth; isolate people of Tapiola)
 4. Why would the abundant resources near Ciudad Guyana make it a good location for a city? (resources for industry; jobs)
 5. Why was Ciudad Guyana built upwind of the steel plant? (to minimize air and noise pollution of residential areas) Why did the planners have Ciudad Guyana follow a linear growth pattern? (to provide access to the river and transportation)
 6. Ciudad Guyana is in a developing country. How might this account for differences between Ciudad Guyana and planned towns in Europe and the United States? (more open spaces for building and cheaper labor usually are available in less developed countries)

- d. An optional activity might involve examination of other new towns (e.g., student presentations, reports). In addition to those listed in the reading, some others are:

Canberra, Australia (kǎn' bǎr ə)
 Lelystad, Netherlands (lǎ lē stăt)
 Dunaujvaros, Hungary (duhr' aw ooee vahr ohsh)
 El Tablazo, Venezuela (el tǎblä' sō)
 Cergy-Pontoise, France (sarzhee pōn twäz')

2. The chart, "Comparing New Towns Here and There," SM 2.3, can be completed by students working individually, in small groups, or as a class. Encourage students to make inferences from the information available. For instance, you can assume that energy generation in each of the four new towns in the chart is similar to that of other towns and cities nearby. Where there is no information to go on, have students put "NI" in the appropriate box. Or, ask how and where needed information might be obtained, and identify interested students to obtain it to share with the class.
3. Show the slides to students without telling them where or what they are. (See what they can surmise from the evidence in the pictures.) Encourage students to try to identify the cities from their reading. Ask them to point out the clues they are using. Then, go through the slides again and identify the scenes.

Scene

1. Aerial view of Tapiola
2. Apartment building in Tapiola
3. Factory in Tapiola
4. Tapiola's town center
5. Vallingby's town center

Scene

6. Columbia's city center
 7. Wild Lake Village, Columbia
 8. Village center in Columbia
 9. Air conditioned mall in Columbia's city center
 10. Steel plant in Ciudad Guyana
 11. View toward the river in Ciudad Guyana
 12. Aerial view of Ciudad Guyana
-

Follow-up discussion might include consideration of questions such as:

- a) How is Tapiola different from your idea of what cities look like?
- b) Compare the use of land in Columbia and Vallingby:
 - 1) Which town makes more efficient use of land?
 - 2) What might be some advantages of living in (either town)? disadvantages?
- c) In what ways is Ciudad Guyana different from the other new towns you have seen?
- d) How are new towns different from older towns and cities? In what ways are new and old towns similar?
- e) Are new towns generally better places to live than older cities? (In what ways?) Should more new towns be built? (Why would that be desirable? What might happen to older cities if more new towns were to be built?)

New Towns: There

In Great Britain, new towns appeared around 1900 as "garden cities," towns "designed for healthy living and industry." The New Towns Act of 1946 made the construction of new towns a government policy. Today there are 27 new towns in Great Britain with a total population of nearly two million. The new towns in Great Britain were planned to control urban sprawl and to distribute industrial centers in less settled areas of the country. The British new towns were developed to provide pleasant living conditions close to places of work. The new towns have been successful in doing this, although there is some criticism that they are inhabited mostly by factory workers instead of many different groups of people. New towns in Great Britain include Stevenage, Harlow, Cumbernauld, Runcorn, and Milton Keynes.

Many people feel that the new towns of Sweden are the best-planned urban environments to be found anywhere. The Swedish new towns are satellites of Stockholm, the country's capital and largest city. They were begun in the 1950's. However, the Stockholm planning commission had been purchasing land for Stockholm's expansion as early as 1637. The new towns of Sweden were not planned to be self-contained communities; they were planned to ease congestion in Stockholm.

The new towns are located along subway lines; each town consists of several neighborhoods clustered around a subway station within 30 minutes of Stockholm's center. The first Swedish new town was Vallingby. It has five large neighborhoods, each with its own center. The town center itself is a pedestrian mall built on top of the subway station. Most of the homes in Vallingby are apartments because the planners wanted the homes to be within 500 meters (less than 1/3 mile) of the subway stop. Farsta was the next new town built near Stockholm, and it is similar in design to Vallingby.

Jarvafaltet is a more recent new town, and it will provide 70,000 jobs for its planned population of 100,000. Jarvafaltet is different from the older new towns: it is a linear (straight line) city. A pedestrian mall links three subway stations. Parallel to the pedestrian mall is a strip of housing. There is one large recreation area for the city.

In some ways the Swedish new towns have been quite innovative in solving environmental problems. Several of them use the AVAC (automated vacuum collection) system for trash disposal. Many of the new towns use a sewerage system called the Liljendahl system. This system uses air to help flush toilets. For each toilet flush, a standard system uses five gallons of water. The Liljendahl systems uses less than 1/2 gallon of water mixed with 20 gallons of air. The Liljendahl system saves water and makes waste treatment more efficient.

Another well-planned urban environment in Scandinavia is the new town of Tapiola in Finland. Tapiola, located near the capital city, Helsinki, is small. Intended for 15,000 people, Tapiola is set among fields, forests, and water. There are three neighborhoods, each with a mixture of housing types -- high-rise apartments, row houses, and one-family houses. A subway is planned to connect Tapiola with Helsinki, but it has not yet been built. The town center has an enclosed shopping area, reflecting pool, community theater, health center, hotel, exhibit hall, and indoor swimming pool. The diversity of Tapiola's design has made it a model for other new towns -- such as Reston in the United States.

Ciudad Guyana is a new town of another type. It is an industrial city on the Orinoco River in Venezuela. Ciudad Guyana has not turned out the way the planners hoped. It is in a region rich in natural resources (oil, natural gas, hydroelectric power). Before the city was planned, a large steel plant was already located there. The city planners decided to cluster heavy industry around the steel plant and then build the rest of the city upwind of the industrial area. Ciudad Guyana is a 15-mile long, linear city with separate centers devoted to special land uses: industry, business and government, culture, and residential housing. These separate areas are tied together by an east-west highway.

The biggest problem faced by Ciudad Guyana has been the rush of people who moved there to find jobs before the town was ready. With such a rush of people, it was difficult to stick to the original plans, and now Ciudad Guyana has large shantytowns, which need to be replaced by permanent homes. Although Ciudad Guyana is not a model new town, it is one of the most important industrial centers in South America today.

New towns and cities are found throughout the world. There are hundreds in the Soviet Union, including Karaganda, Stalingrad, Novosibirsk, and Akademgorodok. In Germany there is Wolfsburg, the home of Volkswagen. Ariashahr in Iran, Senri in Japan, Brasilia in Brazil, Chandigarh in India, and Islamabad in Pakistan are just a few of the planned communities developed over the past 25 years.

Some people feel that city planning and the construction of new towns will let us test new ideas for cities and new approaches to the environmental problems that we face. However, so far, little has been done that is new and different.

Comparing New Towns Here and There

Use this chart to summarize what you know about these four new towns and their environments. If you do not have specific information, make inferences (educated guesses) about the situation.

Environmental Issue	Columbia	EPCOT	Swedish New Towns	Ciudad Guyana
Energy Generation (Sources)				
Energy Conservation				
Transportation				
Housing				
Pollution (air, water, noise)				
Waste Disposal				
Other: _____ _____ _____				

ACTIVITY 3. The Future Urban Environment

Objectives: In this activity, students list possible technological developments in transportation, housing construction, energy generation, and waste disposal; examine and evaluate advantages and disadvantages of these developments; and recommend technological advances that would improve the urban environment.

Organizing Ideas: Scientists and engineers are now experimenting with advanced methods of meeting the needs of urban areas, including:

1. transportation
2. housing construction
3. energy generation
4. waste disposal

Resources:

Hauptert, David. "Dome Homes: Energy-Efficient and Cost-Conscious."

Better Homes and Gardens, September, 1978, 46-49.

Hellman, Hal. The City in the World of the Future. New York: M. Evans, 1970.

Miller, Brown, Pinney, Neil, J., and Saslow, William S. Innovation in New Communities. Cambridge, Massachusetts: MIT Press, 1972.

Packard, Vance. "Everyday Life in 2001." Pittsburgh, January 1979.

Student Materials:

Handouts (provided in the Student Materials Packet)

Fact Sheets

Transportation Futures (SM 3.1)

Energy Futures (SM 3.2)

Housing Futures (SM 3.3, 3.4)

Waste Disposal Futures (SM 3.5)

Summary and Recommendations (SM 3.6)

Suggested Procedures:

1. In this activity students work in small groups to examine possible technological developments and their advantages and disadvantages in terms of the quality of life in urban environments. Each student works with one of the four fact sheets and a summary and recommendation sheet.
2. As an introduction, ask students what inventions they would like to see by the year 2001 to make their lives more enjoyable and to improve their environment. Encourage them to use their imaginations. Write their suggestions on the chalkboard.
3. Explain to students that they will be examining and evaluating some new technology that might be available to us in the next 25 years. Included are possible developments in transportation, energy generation, housing construction, and waste disposal. After they read and discuss the information provided on their fact sheet, students should complete the summary and recommendations sheet as if they were city planners advising the mayor or council on which technological advances should be adopted. (Additional information, from library resources, might be provided about the various technological innovations.)
4. Divide the class into four groups. Distribute copies of one of the four fact sheets and copies of the summary and recommendations sheet to each group. (Refer to Module I, Energy Generation, for more information on energy sources.)
5. If necessary, explain how to complete the summary and recommendations sheet. The topic should be entered at the top of the page. The names

of the six to eight possible innovations (from the fact sheet) should be listed in the technology column. (Encourage students to add other innovations with which they are familiar, including those previously listed on the chalkboard.) After noting possible advantages and disadvantages (including environmental effects), each group should prepare their conclusions and recommendations. For example:

The Future Urban Environment: Transportation

<u>Technology</u>	<u>Advantages</u>	<u>Disadvantages (including effects on the environment)</u>
Personal Flying Platforms	fun convenience speed ease crowded ground transportation	safety?? congestion could everyone use them? noise? air pollution? visual pollution (shadows moving over people on the ground)

6. To conclude this activity, ask each group to make a brief report to the class. Group members can summarize the future technologies they've considered and then make their recommendations for implementation.
7. An optional activity that could serve as either an introduction or conclusion would be to read science fiction stories or novels for other views of the future. Two possibilities are When the Sleeper Wakes by H. G. Wells and Cities of Wonder, a paperback collection of short stories edited by Damon Knight (Macfadden, 1967). Also recommended are: James Blish, Cities in Plight (Avon, 1970), a collection of four novels; Arthur Clarke, The City and the Stars (Signet, 1953); Robert Heinlein,

Farnham's Freehold (Berkley Medallion, 1964) and The Man Who Sold the Moon (Signet, 1950); F. Pohl and C. M. Kornbluth, The Space Merchants (Ballantine, 1952); Earth in Transit, a collection of short stories edited by S. Schwartz (Dell, 1976).

FACT SHEET

Transportation Futures

1. Dial-a-Ride

Minibuses would make door-to-door pickups; computers would relay instructions to drivers.

2. Personal Flying Platforms

A "flying belt" and "flying platform" have already been developed; within 15 years this mode of transportation could revolutionize the cities and the skies above them. They operate on a small (60 pound) gas turbofan engine that carries fuel for 20 minutes of flight.

3. Monorails

Monorails include those forms of mass transit that use a single rail to guide the passenger vehicle.

4. Moving Sidewalks

Slow moving on and off ramps would provide access to 10 mph moving walkways in shopping malls and business districts.

5. Lightweight Plastic Electric Cars

These would be available in various sizes, from 4-6 passenger family cars down to tiny, golf-cart sized runabouts.

6. People-Mover Cars

These are 10-passenger computer-controlled cars running on their own electrified right of way. An experimental model is in use at West Virginia University.

FACT SHEET Energy Futures

1. All Underground Power Transmission

Utility poles and wires would no longer be necessary.

2. Fuel Cells

Each home would have its own fuel cell to generate power from bottled fuels. (The fuel cells would be provided by utility companies who would be selling their product and service as they do now.)

3. Nuclear Energy (fast breeders or fusion reactors)

The waste heat would be used for fish farming or year-round heated recreational swimming areas.

4. Tidal Energy

This would make use of the energy in the ocean tides (caused by the pull of the moon).

5. Geothermal Energy

Ways could be found to use the internal heat of the earth.

6. Solar Energy

One possibility here is to have satellites collect the sun's rays on large solar cell collectors and beam the energy to receiver stations on earth via microwave.

7. Windmills

In certain locations, the wind could be used directly as an energy source and to generate electricity.

FACT SHEET
Housing Futures

1. Prefabrication

Houses could be built in put-together parts; catalogues could explain all the options available to home buyers.

2. Spinning a House

Plastics could be "grown" into any form of house you desired. An erector boom would pour plastic foam into the desired shape.

3. Inflatable Shelters

These could remain flexible or be hardened into a permanent structure.

4. Suspended Cities

Buildings could be hung from cables.

5. Modularization

"Plug-in" rooms and apartments could be moved from one tower framework to another.

Housing Futures (continued)

6. Domes

These would be self-supporting "umbrellas" for cities or neighborhoods. The domes would be made of super-insulating glass, which would be electrified to melt snow. (Dome-shaped houses are also being built.)

7. Megastructures

A large building makes the most intensive use of land and is the most efficient way to provide climate control. A megastructure is a gigantic building with many uses and activities within it: homes, businesses, schools, recreation.

8. Underground Homes

Clusters of homes could be constructed around a central patio to let in sunlight. The homes would be under a few feet of soil.

FACT SHEET

Waste Disposal Futures

1. Biostabilization

This process separates inorganic materials (metal and glass); the rest is then composted into fertilizer.

2. Home Solid and Liquid Waste Treatment and Water Recycling

Each home would have the capability of treating its own dirty water and recycling it.

3. Solid Waste Recycling

Methods and equipment are being developed to automatically sort and separate minerals and metals from other wastes so they can be used again.

4. Biodegradable Packaging

Packages and containers would be designed to break down or decompose.

5. Compacting

Treated trash would be compacted into blocks. This could be a building material of the future.

6. Fuel Conversion

Solid human wastes would be converted into fuel. (No, there wouldn't be any odor.)

The Future Urban Environment: Summary and Recommendations

VIII

Technology	Advantages	Disadvantages (including effects on the environment)

Conclusions and Recommendations

SM 3.6

ACTIVITY 4. EnviroCity

Objectives: In this activity, students use their previously acquired knowledge and skills in planning and designing a quality urban environment.

Organizing Idea: With the technological innovations expected in the next 25 years, an urban environment that conserves resources and is pleasant to live and work in can be designed.

Resources:

Bor, Walter. The Making of Cities. New York: Barnes and Noble, 1972.

Meier, Richard. Planning for an Urban World: The Design of Resource-Conserving Cities. Cambridge, Massachusetts: MIT Press, 1974.

Miller, Brown, Pinney, Neil J., and Saslow, William S. Innovation in New Communities. Cambridge, Massachusetts: MIT Press, 1972.

Student Materials:

Handout (provided in the Student Materials Packet)

EnviroCity (SM 4.1)

Rulers, sheets of unlined 9x12" paper, large sheets of paper, colored markers or pencils (optional)

Suggested Procedures:

1. Review students' findings from Activity 3, The Future Urban Environment. Which innovations were recommended for housing, waste disposal, energy, and transportation? What parts of the present environment are worth saving? Tell students that they will have an opportunity to put their recommendations into "practice."

2. Distribute handout SM 4.1 to the class, and ask students to read it.
You may wish to discuss the quotation with them: What is a "simple and adequate" dwelling unit? Why should the services to people be "magnificent"?
3. Before students begin to design their cities, review the many components and needs of a city: homes, transportation, industry, shopping areas, recreation, government, public utilities, culture, entertainment, offices, hotels, education, hospitals, etc. Remind students that this is to be a resource-conserving city, and discuss what that term means.
4. Distribute a sheet of 9x12 paper to each student (or use the back of SM 4.1). Each student should sketch a plan for EnviroCity. (Some students may prefer to describe EnviroCity in words.)
 - a. After students have had some time (20-30 minutes) to work alone, divide the class into groups of four or more students, each one an "expert" (see Activity 3) in a different field (housing, waste disposal, energy, transportation).
 - b. Distribute one large piece of paper or cardboard to each group. Students should combine their individual ideas to come up with their group's EnviroCity. If time and interest permit, students might construct more elaborately drawn and colored EnviroCity plans or create models using blocks or other materials.
5. Although this activity might be accomplished in one class period, more time is desirable so that students' EnviroCity plans might be more polished and comprehensive. Finished plans should be displayed for all to see. (Activity 5 provides for the review and evaluation of EnviroCity plans.)

EnviroCity

In this activity, you will have the opportunity to plan EnviroCity -- the city for people who care about the environment. You will be working in groups made up of experts on housing, transportation, energy, and waste disposal. Try to plan a city that you would want to live and work in.

As you design EnviroCity, think about these words from a city planner:

When we talk about building a city, we think too much of the housing and often too little of the services to people. . . I dream of a city where the dwelling units are simple and adequate but the services in education, sanitation, health, recreation, art, music, and all forms of culture are magnificent.

HOUSING?

Education?

Waste?

? ENERGY?

Transportation?

? Sports?

Recreation?

Arts?

Shopping?

?

ACTIVITY 5. Evaluating EnviroCity

Objectives: In this activity, students present their EnviroCity plans to the class, analyze the relationships between each EnviroCity and its urban environment, and assess how well each EnviroCity fulfills quality of life goals.

Organizing Idea: EnviroCity is intended to be an ideal resource-conserving environment in which people can enjoy a high quality of life.

Resources: See Activity 4. EnviroCity.

Student Materials:

Handouts (provided in the Student Materials Packet)

Evaluating EnviroCity (SM 5.1)

Decision-Making Map

EnviroCity plans from Activity 4

Transparency (provided in the Student Materials Packet)

Decision-Making Map (same as handout)

Suggested Procedures:

1. Distribute the handout, "Evaluating EnviroCity," SM 5.1, and explain that each planning group will present its version of EnviroCity to the class. Students are to evaluate each EnviroCity plan in terms of its provisions for transportation, energy use, housing, and waste disposal. Students should fill in their charts with notes that will help them remember how each EnviroCity responds to urban environmental problems. In the column for Overall Rating, students should evaluate each EnviroCity for the quality of life it provides. (For example: A = excellent; B = good; C = satisfactory; D = fair; E = poor.) Ask

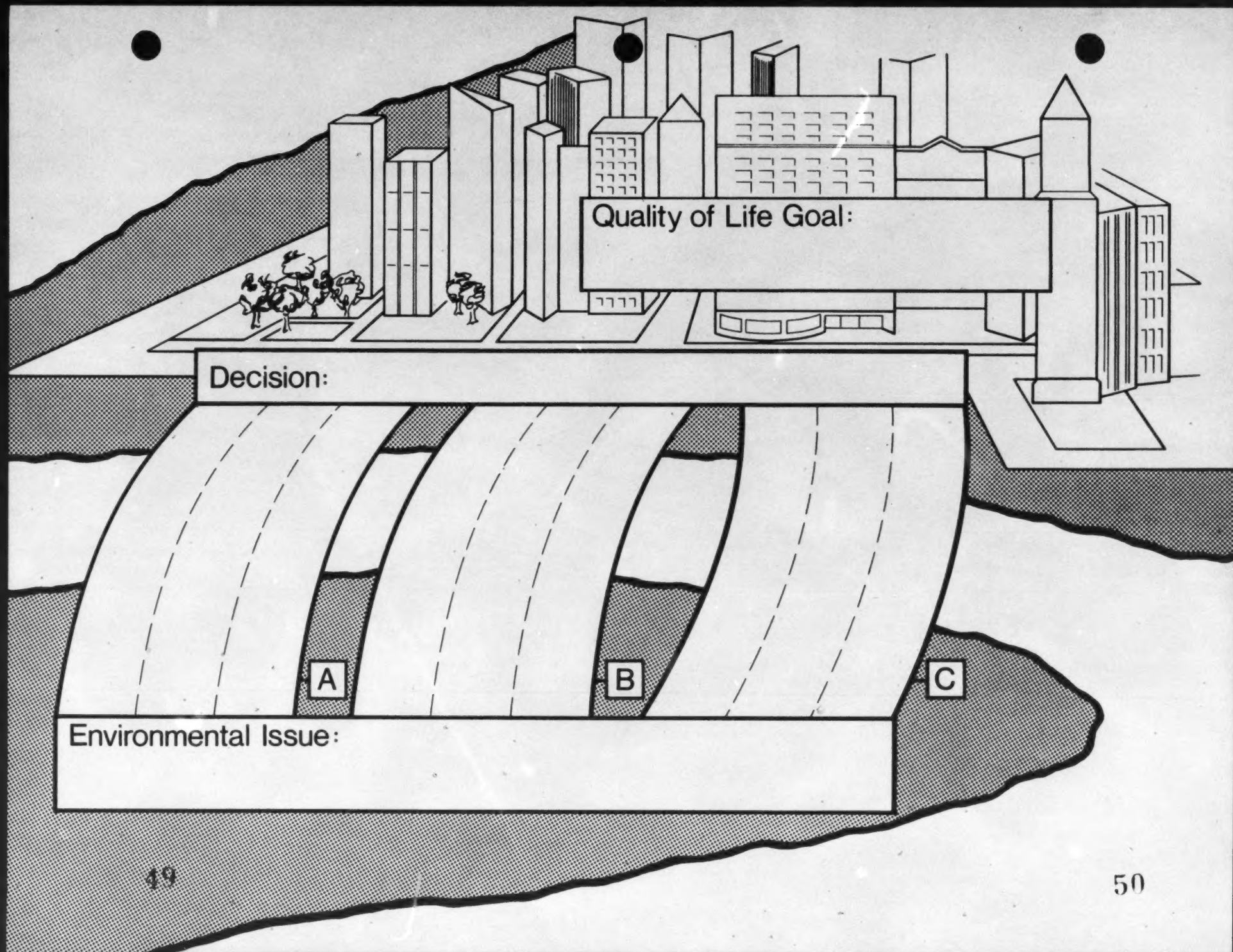
students to keep in mind the question: How well does each EnviroCity plan fulfill these needs while conserving resources and maintaining environmental quality?

2. After each group has presented its plan for EnviroCity, distribute the Decision-Making Map to help students review how well each EnviroCity meets quality of life goals with respect to the environmental issues involving transportation, energy use, housing, and/or waste disposal. (Each EnviroCity plan might represent an alternative route to the quality of life goal(s) that students identify.) Questions such as the following might facilitate discussion:
 - a. How well does that EnviroCity plan fulfill the quality of life goal?
 - b. Which EnviroCity plan would do the best job of protecting the environment? (How does it work?)
 - c. In which EnviroCity would you most like to live and work? Why?
3. Optional follow-up activity: Involve students in assessing how well their own communities are meeting the quality of life goals they've formulated. For example: What modes of transportation are available? (How efficient (comfortable, environmentally safe) are they?) On what forms of energy does the community depend? How is waste disposed of? What kinds of housing are available? What plans are there for future changes in transportation (energy use, waste disposal, housing)? What needs to be done to conserve resources? to maintain environmental quality? Who will do it?

Evaluating EnviroCity

As each group presents its EnviroCity plan, fill in this evaluation chart with your own comments on how well the plan responds to each urban environment challenge.

EnviroCity # and Overall Rating	Transportation	Energy Use	Housing	Waste Disposal



Planning Your Urban Environment

MODULE EVALUATION

Please complete immediately after module use and return to C. Cornbleth,
4A01 Forbes Quadrangle, University of Pittsburgh, Pittsburgh, PA 15260

Teacher _____ School _____

Address _____

Grade/Subject Area _____ Date _____

A. Module Use Checklist

Please indicate whether you and/or your students used each section of this module by circling either YES or NO.

YES NO 1. Overview

YES NO 2. Teacher Background Information

YES NO 3. Activity Preview

YES NO 4. Pretest

(Activity 1. New Towns: Here)

YES NO 5. New Towns: Here

YES NO 6. Reviewing "New Towns: Here"

(Activity 2. New Towns: There)

YES NO 7. New Towns: There

YES NO 8. Comparing New Towns Here and There

YES NO 9. Slides

(Activity 3. The Future Urban Environment)

YES NO 10. Fact Sheets

YES NO 11. The Future Urban Environment

YES NO 12. Activity 4. EnviroCity

A. Module Use Checklist - continued

(Activity 5. Evaluating EnviroCity)

YES NO 13. Evaluating EnviroCity

YES NO 14. Decision-Making Map

B. Initial Reactions

Please comment briefly on each of the following aspects of the module.

1. Importance of (knowledge, skills, and attitudinal) objectives:

2. Significance of content:

3. Appropriateness of activities (procedures, materials):

4. Useability, ease of teaching, practicality:

5. Student reactions:

6. Your overall reaction to the module (check one):

___ Very Positive; ___ Positive; ___ Neutral or Uncertain

___ Negative; ___ Very Negative

Thank you.